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2, That the inconveniences of employing shallow vessels in distilling wines, arise from the facility, with which evaporation takes place in them.

3, That a high temperature is always necessary to carry over the peculiar aroma of the wine, and perhaps too that arising from the action of heat in the principles of the wine.

4, That deep alembics ought to be preferred to shallow ones for the distillation of wine.

5, Lastly that the best dimensions of an alembic (for wine) with regard to figure, must be such, that the surface of the liquor heated shall be constantly greater than that from which the evaporation takes place, and we may for instance take it as a rule that the proportion between the two should be as four to one.

Remarks.... The translator of the above paper for Nicholson's journal, observes that "though deep stills are best for distilling those simple or spirituous waters, where a full impregnation with the peculiar flavour of the vegetable substance employed is desirable; yet that from the above paper it is evident that a shallow still is preferable where the object is to prevent as much as possible the peculiar flavour of the liquor distilled from rising, as in distilling from malt and from molasses, the common materials in our country, and this not only on account of the saving in time and fuel, but of the superiority in point of flavour. The proper proportions for the deep stills for the finer kinds of the first mentioned articles, may deserve a more particular inquiry."

Mr. Curaudau has not been very happy in accounting for the greater heat, which the liquor in deep stills, is capable of acquiring, as by way of a cause he has merely stated an effect; the real cause is the greater pressure, which the increased depth of the liquor occasioned, affording more resistance to the motion of the heat, or hot steam, in its passage from the bottom of the alembic to the surface.

Account of a New Musical Instrument, called a Clavi-cylinder, invented by M. Chladni.

M. Chladni describes his invention in the following terms;

"The Clavi-cylinder contains a set of keys, and behind them a glass cylinder, seven centimeters (about three inches) in diameter, which is turned by means of a pedal, and loaded wheel. This cylinder is not the sounding body, but it produces the sound by friction on the interior mechanism. The sounds may be prolonged at pleasure, with all the gradations of *crescendo*, and *diminuendo*, in proportion as the pressure on the keys is increased or diminished. This instrument is never out of tune. It contains four octaves and an half, from *ut*, the lowest in the harpsichord, up to *fa*."

The imperial conservatory of music at Paris, have made a very favourable report of M. Chladni's invention, which report describes it as resembling the flute and clarinet in the high notes, and the bassoon in the low notes; but also states that it is not so well adapted for lively strains, as for solemn music. They however, highly praise its effects in the *crescendo* and *diminuendo*.

Remarks.... Our late ingenious countryman, Mr. Clagget of Waterford, contrived and made several duplicates of an instrument, which possessed most of the properties of M. Chladni's Clavi-cylinder. It was called an *Aiaton*, and it consisted of tuning forks of various sizes, suitable to the different notes, over which a rozzined silk band was moved by a crank and pedal, and was brought into contact with any one desired, by pressing the corresponding key. It seems very probable, from the effects of M. Chladni's instrument, corresponding so exactly with those of this, that the sounding parts are the same in both, and that they only differ in the glass cylinder in the French instrument being substituted for the silk band, of that contrived first by Mr Clagget.

On deal Pendulum Rods, by Mr. E. Walker. *Phil. Mag.* v. 34, p. 2.
Mr. Walker, in the beginning of

this paper, has inserted a table, of the greatest variations in the daily rate of the transit clock at the Royal Observatory of Greenwich, from which it appears that the mean annual variation in its daily rate for six years is $-3^{\circ} 9''$. The mean annual variation of Mr. Walker's clock with a deal pendulum rod (of which an account is given in the Philosophical Magazine, vol. 54, p. 30) is $-5^{\circ} 41''$, consequently the transit clock at the Royal Observatory, went only $1^{\circ} 51''$ per annum nearer true time than the clock with a deal pendulum rod. Mr. Walker then observes, that this is not a matter which need astonish any one who understands the construction of the two pendulums.

"In the grid-iron pendulum there is some friction, which ought always to be avoided in any compensation applied to time-keepers: and moreover the length of the pendulum may be increased by its own weight; indeed the great number of times that the bob of the transit clock at the royal observatory has been raised, renders this supposition more than probable.

In a pendulum with a wooden rod there is no friction; and as my pendulum was not altered during six successive years, except by the vicissitudes of dryness and moisture, the weight of the bob, or lens, had no tendency to increase the length of the rod. And it may be further observed, that as the cleaning of the

clock made no alteration in its daily rate, it seems probable that the pendulum is the only part of it which measures the time into equal portions.

Mr. Walker then relates, as follows, the method by which he determined that the alteration in the length of his pendulum was caused by the vicissitudes of dryness and moisture, and not by those of heat and cold. After stating, that philosophical instruments were not always necessary for investigating the operations of nature:

"My clock stands in a room in which there has been no fire for many years. In this situation the mahogany clock-case acts as a hygrometer. For in the driest season of the year, the door is so constructed as not to touch one side of the case; but when the atmosphere is very moist, the door is so much increased in breadth, that it cannot be opened without using a force that might alter the rate of the clock.

"When the door was too little for the clock-case, the clock always gained of true time, but it always lost when the door could not be opened. Hence it is evident, that a damp atmosphere, which increased the breadth of the clock-case door, increased the length of the pendulum rod; and a dry atmosphere, which contracted the breadth of the door, contracted at the same time the length of the deal pendulum rod.

DETACHED ANECDOTES.

CONVERSION ON SLIGHT GROUNDS, AND AS SLIGHT A RE-CONVERSION.

A WOMAN had been won over from Popery to Calvinism, not by any rational argument, but by a scruple thrown in her way, by her husband. "Ye call the Pope his holiness," said he, "what impiety! for is it not said in scripture, holiness to the lord?" The woman was struck with these words, and became a violent Presbyterian. Her parents, and friends bewailed her apostacy and with tears requested Dr. Geddes to try to reclaim her. He replied, "I shall certainly speak to her, but if she have con-

scientiously changed her religion, neither ye nor I have a right to condemn her."

He took an opportunity to accost her, and simply asked, why she had left the Catholic communion? She answered, "it is because ye call the Pope his holiness." "Is that all?" said the Dr. smiling, "your motive is none of the strongest: the title you have boggled at, is a mere title of distinction: not annexed to the person of the Pope, but his high function. Thus we call the king, his sacred majesty, a title far more august than that of his holiness. Be-